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INPATIENT BURDEN OF ILLNESS AND PREDICTORS OF CHARGES OR LENGTHS OF STAY AMONG ADULT HEART TRANSPLANTATION PATIENTS

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OBJECTIVES: To assess the role of hospital, patient, payer and clinical factors on inpatient hospital lengths of stay (LOS) and total charges in adults undergoing heart transplantation. **METHODS:** This analysis utilized the nationally representative inpatient hospital discharge records from the Agency for Healthcare Research and Quality (AHRQ) Healthcare Cost and Utilization Project (H-CUP) Nationwide Inpatient Sample (NIS) from 2002 to 2005. All patients above 18 years of age receiving a heart transplantation procedure were selected for inclusion. Specific variables of interest included patient demographics (e.g., age, sex, race, income), hospital characteristics (e.g., rural/urban), payer (e.g., Medicare, commercial, uninsured), procedures, diagnoses, case-mix risk adjustment (e.g., all patient refined DRG (APR-DRG)), and inpatient mortality. Outcomes analyzed were LOS and total charges. Gamma and negative binomial generalized linear models with log-links were employed with an a priori alpha of 0.05 for statistical significance. Human subjects approval was obtained from the University of Arizona. **RESULTS:** Overall, 5911 patients underwent a heart transplantation between 2002–2005, with 74.1% of these patients being males. Mean charges were $332,617 ± $212,403. Average LOS was 41.76 ± 50.16 days. Inpatient mortality was 5.4%. Regression analyses indicated significant associations between charges and number of procedures (Incidence Rate Ratio (IRR) = 1.074, 95% CI = 1.059–1.089), inpatient mortality (IRR = 1.274, 95% CI = 1.094–1.483), APR-DRG (IRR = 1.126, 95% CI = 1.061–1.195), African-American race (IRR = 0.871, 95% CI = 0.783–0.969), and hospital location (IRR small metropolitan = 0.799, 95% CI = 0.731–0.874, IRR micropolitan/rural = 0.741, 95% CI = 0.661–0.831). These analyses also indicated significant associations between LOS and number of diagnoses (IRR = 0.979, 95% CI = 0.960–0.997), number of procedures (IRR = 1.104, 95% CI = 1.082–1.126), APR-DRG (IRR = 1.291, 95% CI = 1.136–1.467), and hospital location (IRR micropolitan/rural = 0.779, 95% CI = 0.635–0.958). **CONCLUSIONS:** This investigation of 5911 adult heart transplant patients suggests that several factors are significantly associated with LOS and charges. Continued research, particularly subgroup analyses and long term follow-up, are warranted.

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ECONOMIC BURDEN OF ATHEROSCLEROSIS AMONG PATIENTS WITH TYPE-2 DIABETES MELLITUS

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OBJECTIVES: The present study estimated cardiovascular event rates and direct medical costs attributable to the medical management of type-2 diabetes mellitus (T2DM) patients with diagnosed atherosclerosis. **METHODS:** Using national administrative claims data, the number of cardiovascular (CV) events (i.e., myocardial infarction, stroke, revascularization) and direct costs of care were quantified among patients >17 years of age with T2DM and, with or without an ICD-9 diagnostic code for coronary or cerebral atherosclerosis between January 1, 2002 and December 31, 2004. Patients with a CV event in the 12 months prior to index date were excluded. A comparison cohort (n = 14,188) with T2DM and no atherosclerosis diagnosis was matched on age, gender, geography, and Charlson comorbidity score to patients with diagnosed atherosclerosis and T2DM (n = 10,842). Differences between patient groups were tested for CV event rates per 1000 patients and monthly costs for 12 months pre- and post-diagnosis. **RESULTS:** The cohorts included 55% men with a mean age of 60.5 years (30% were > = 65 years of age). Patients with atherosclerosis and T2DM had 239 CV events/1000 patients and the comparison cohort with T2DM had 39.8/1000 patients at 12 months post-index date, $p < 0.01$. Mean total cost of care for patients with atherosclerosis and T2DM was $10,039 for the 12 months before and $18,371 for 12 months post-diagnosis, an 83% increase. One-year post-index total costs were significantly higher among atherosclerosis and T2DM patients than the comparison cohort ($18,371 vs. $5,765, $p < 0.01$). The attributable cost (difference between atherosclerosis pre- and post costs and comparison pre- and post costs) for atherosclerosis was $627 per month ($7524 for 1 year). **CONCLUSIONS:** Patients with diagnosed atherosclerosis and T2DM have substantial medical and economic burden attributable to their atherosclerosis. Utilizing administrative data, health plans may identify these patients for more effective management and treatment of their underlying atherosclerosis to reduce this burden.

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MANAGEMENT OF PRIMARY ATRIAL FIBRILLATION (AF): PATIENT CHARACTERISTICS AND HOSPITAL CARE SETTING

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OBJECTIVES: To describe and differentiate characteristics and costs of patients admitted for treatment of primary AF in hospital emergency department (ED) and inpatient settings. **METHODS:** Analysis of 2004–2005 discharges from the Premier Perspective database, including patients with primary AF diagnoses and evidence of initial therapy with electric conversion (EC) or an IV antiarrhythmic (amiodarone, ibutilide or procainamide). **RESULTS:** Of 11108 discharges evaluated, 34% were admitted directly as inpatients and 66% presented to the ED. Of these, 14% were treated and released from the ED; the remaining 86% were transferred to the inpatient setting. ED patients were significantly ($p < 0.0001$) younger with fewer comorbidities ($p < 0.0001$) than either transfer or direct admit patients. Initial conversion therapy for the vast majority (79%) of ED treated patients was either EC or ibutilide, both of which are fast acting. Only 10% of ED patients received initial amiodarone. In contrast, 52% (42%) of transfer (direct) patients were treated with initial amiodarone and 39% (54%) received initial EC or ibutilide. About 4% of ED patients required a second conversion attempt compared to 13% of inpatient discharges. Median LOS was 4 days for both direct admit and transfer patients. Average costs were highest among direct admit ($9229) vs. transfer ($8811) and ED ($1209) patients ($p < 0.0001$). **CONCLUSIONS:** Health care resource utilization is high for patients presenting with acute AF and varies significantly by hospital care setting. Adjusted average costs of treating primary AF in the inpatient setting are significantly higher than the costs of treatment in the ED. Patient characteristics and selected method of cardioversion may impact both choice of care setting and costs. In clinically appropriate patients, the availability of fast-acting conversion therapies suitable for use in the ED may obviate the need for inpatient admission and, thus, reduce the health care burden of treating AF in the US.

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INPATIENT RESOURCE USE AMONG PATIENTS TREATED FOR PRIMARY ATRIAL FIBRILLATION (AF): ROLE OF CLINICAL FACTORS AND CHOICE OF INITIAL CONVERSION THERAPY

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OBJECTIVES: Prior analyses showed that AF patients treated with initial IV amiodarone had significantly higher adjusted average resource use compared with other therapies. This analysis assesses whether these results can be explained by presence of classic AF covariate (AFC) diagnoses (heart failure; peripheral vascular disease). **METHODS:** We used 2004–05 discharges from the Premier Perspective database, including patients with primary AF diagnoses and evidence of initial therapy with electric conversion (EC) or an IV antiarrhythmic [amiodarone (AM), ibutilide (IB) or procainamide (PR)]. Patients were classified by AFC status. Inpatient costs and LOS were adjusted for clinical, demographic and hospital factors. **RESULTS:** We stratified 10048 discharges into groups with AFC (28%) and without. Results showed that patients with AFC had higher costs ($p < .0001$) and longer LOS overall ($p < .0001$) and were 34% more likely to be treated with initial AM ($p < .0001$) vs. patients without, thus explaining some of the differences observed earlier. However, resource use with initial AM remained significantly higher than with any other initial therapy regardless of patients' AFC status. Among those without AFC, adjusted average costs were $440–$1988 higher ($p < .0001$) and LOS was 0.4–1 day longer ($p < .0001$) with initial AM than with any other initial therapy. Among patients with AFC, initial AM was $1602–$3266 higher ($p < .0001$) and LOS was 1.1–1.5 days longer ($p < .005$) than with any other initial therapy. **CONCLUSIONS:** There are significant inpatient cost and LOS differences among AF patients depending on initial therapy and presence of AFC. Patients with AFC had higher adjusted average costs and LOS than those without and were more likely to be treated with initial AM. However, adjusted average costs and LOS were highest among patients treated with initial AM regardless of AFC status. Further research should explore whether factors such as time to conversion affect resource use among these patients.

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COST AND OUTCOMES AFTER FIRST ACUTE MYOCARDIAL INFARCTION: STUDY ON 12049 INDIVIDUALS USING ADMINISTRATIVE DATABASES

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OBJECTIVES: To estimate the economic burden of AMI incident events registered in 2003 in Lombardy, the most inhabited region of Italy. **METHODS:** Data were extracted from health care administrative databases of Lombardy Region, which covers a population of about 9.2 million members. Administrative Healthcare databases related to eligibility criteria, hospital admissions (HA), pharmaceutical and outpatient claims of Lombardy Region citizens have been organized, using probabilistic record linkage, in a data warehouse, called DENALI, to facilitate processing and analysis. Using DENALI, we conducted a longitudinal and naturalistic study on the burden of incident AMI in the perspective of the regional health service (RHS). We identified all individuals with a HA for incident AMI (ICD-9-CM codes 410.xx, excluding codes 410.x2) during the year 2003 and followed them up to dec.31st 2005, death or transfer. We used charges to the RHS to quantify the economic burden of AMI to the RHS. Outcomes were quantified in term of morbidity (sequelae) and mortality. We report on cost (overall and monthly cost-per-patient) and mortality. **RESULTS:** During 2003, 12,049 individuals (64% males, mean age 70 +/–13 y.o.) had a HA for incident AMI. A total of 3380 (28%) subjects died during an average follow-up period of 23 months. The total cost for all patients during the first year was €163 million, corresponding to the 1% of the health care budget of